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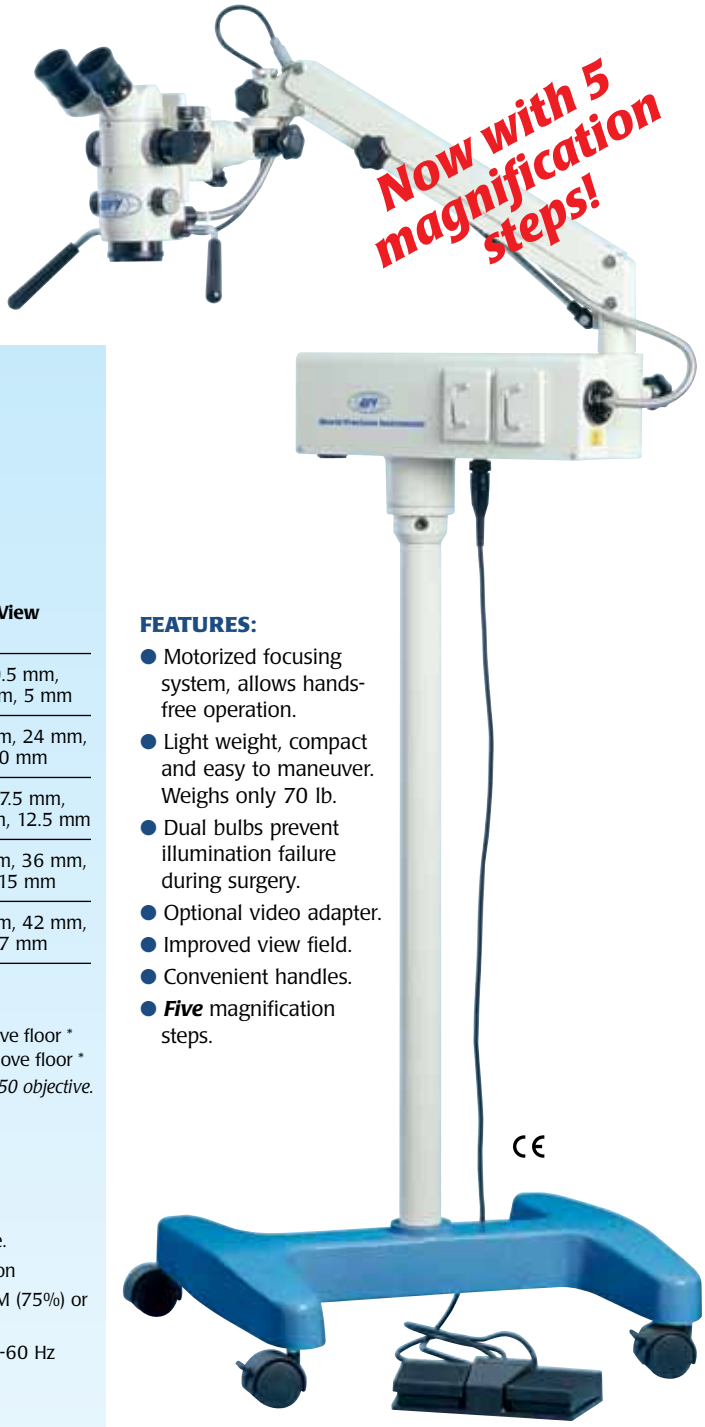
Prices shown are in U.S. dollars. Actual charges will vary because of import duty, freight, and currency fluctuations. To obtain an exact quotation, contact your WPI office.

Precision SurgioScope

Ideal for small animal surgery



SURGIOSCOPE SPECIFICATIONS

TOTAL MAGNIFICATION ..... 1.8× – 40×
ADJUSTABLE DIOPTER ..... ± 6 Diopter
ADJUSTABLE INTERPUPILLARY DISTANCE ..... min. 50 mm – max. 70 mm
WORKING DISTANCE ..... 94 mm – 344 mm
EYEPIECE 12.5x
LENS CHARACTERISTICS

Objectives	Objective Focal Distance	Working Distance	Total Magnification	Field of View
F100 (Optional)	100 mm	94 mm	6.4× 10× 16× 26× 40×	33 mm, 20.5 mm, 13 mm, 8 mm, 5 mm
F200 (Included)	200 mm	195 mm	3.2× 5× 8× 13× 20×	58 mm, 38 mm, 24 mm, 15 mm, 10 mm
F250 (Optional)	250 mm	246 mm	2.6× 4× 6.4× 10.4× 16×	72.5 mm, 47.5 mm, 30 mm, 19 mm, 12.5 mm
F300 (Optional)	300 mm	294 mm	2× 3.3× 5.3× 8.6× 13.3×	87 mm, 57 mm, 36 mm, 22.5 mm, 15 mm
F350 (Optional)	350 mm	344 mm	1.8× 3× 4.5× 7.5× 11.5×	99 mm, 65 mm, 42 mm, 27 mm, 17 mm

FINE FOCUS ADJUSTMENT RANGE ..... 30 mm
WORKING HEIGHT (Arm Movement Range Above Floor)
89 cm Post ..... Focus on specimens 34.5" (88 cm) to 51" (130 cm) above floor *
103 cm Post ..... Focus on specimens 40.5" (103 cm) to 57" (146 cm) above floor *
** Subtract Working Distance for height above specimen, 103 cm post recommended for F350 objective.*
RANGE OF MOTION
Maximum Stretch Radius of Arm ..... 870 mm
Vertical Movement Range ..... 700-1100 mm
Adjustable Range of Small Arm ..... 30 mm
ILLUMINATION
Dual lamp housing with quick-change spare and internal coaxial fiber optic cable.
HALOGEN-TUNGSTEN LAMP ..... 12V, 100W, with cold reflection
OPTIONAL CAMERA ..... 1/2" CCD camera (*e.g.*, COLCAM (75%) or DC2000M (57%))
POWER ..... 110V, 50-60 Hz, or 220V, 50-60 Hz
SHIPPING WEIGHT ..... 94 lb (43 kg)

FEATURES:

- Motorized focusing system, allows hands-free operation.
- Light weight, compact and easy to maneuver. Weighs only 70 lb.
- Dual bulbs prevent illumination failure during surgery.
- Optional video adapter.
- Improved view field.
- Convenient handles.
- ***Five*** magnification steps.

WPI's improved precision SurgioScope (now with five magnification steps) is a portable high quality surgical microscope offering outstanding image quality and value. Incorporating an agile extension arm and excellent working distance objectives, the SurgioScope provides convenient movement and maneuverability necessary for accurate positioning. These important features, together with a high quality optical system, provide sharp image contrast and enhanced large field of vision. The SurgioScope comes fully equipped with a foot-controlled motorized focusing system, normally only found in more expensive surgical microscopes. A unique dual lamp housing enables safe and rapid changing of the lamp during an operation, without the need to power down. The optional video port on the "T" version permits operational procedures to be monitored or recorded simultaneously using a video recorder and a COLCAM video camera or digital stills with DC2000M The mobility of the DC2000M is limited to 2.5 m (7 ft.) by its USB cable.

PSMB5	Binocular SurgioScope, F200 objective (Specify post height.)
PSMT5	Trinocular SurgioScope, beam splitter, std video adapter, F200 objective (Specify post height.)

Specify 89 cm or 103 cm post – Specify line voltage

OPTIONS AND ACCESSORIES

501636	1/2" CS-mount Adaptor (requires Beam Splitter 501637)
501637	Beam splitter
501669	Objective lens F100
501638	Objective lens F250
501639	Objective lens F300
501640	Objective lens F350
500162	Replacement lamp, 12V, 100 W

Prices shown are in U.S. dollars. Actual charges will vary because of import duty, freight, and currency fluctuations. To obtain an exact quotation, contact your WPI office.

Precision Stereo ZOOM Microscope

- ***Modular, two parallel beam design***
- ***Planachromatic objectives, no optical distortion***
- ***High-contrast imaging, ideal for observing transparent, low-contrast objects***
- ***Large zoom ratio: 8:1***
- ***Large zoom range: 0.62x to 5.0x***
- ***Long working distance***
- ***Step and continuous zoom***
- ***5-year warranty***

The fourth generation of WPI's precision stereo zoom microscopes uses modular, two parallel beam path design and high quality optical system. The advanced optical design with planachromatic objectives provides sharp and distortion-free contrast image throughout the entire zoom range and comes with an impressive 5-year warranty.

The **PZMIV** is available in a binocular or trinocular version. In addition, an extensive list of optional accessories is available that makes the PZMIV suitable for integrated optical and biological research.

The microscope comes with a track stand, standard 10x eyepieces (wide-field, distortion-free and high eye point), 1x planachromatic distortion-free objective. See the Table on next page for all optical options.

502160
Lighted Fan Base

All PZMIV and PZMTIV microscopes come with 10x eyepieces, built-in 1x auxiliary lens, and light ring adapter.
COLCAM Video Camera or DC2000M digital camera available separately
#500028 Camera Coupler, available separately
CE
Max. Working Distance: 25 cm

Shown: PZMTIV with COLCAM and 0.5X c-mount adapter
(camera and c-mount not included)
The trinocular version is a true *trinocular, with continuous operation of both eyepieces and photo tube simultaneously. There is no need to block the right eyepiece to use the photoport.*

PZMIV	Precision Stereo Zoom Binocular Microscope (Model IV), on Track Stand
PZMIV-BS	PZMIV Microscope on Boom Stand
PZMTIV	Precision Stereo Zoom Trinocular Microscope (Model IV), on Track Stand
PZMTIV-BS	PZMTIV Microscope on Boom Stand
PZMTIV-CCTV	PZMTIV Microscope Video System, including PZMTIV, COLCAM Color Video Camera, 0.5x CCD Camera Coupler, Novaflex Optical Illuminator, Bifurcated Optical Fiber Light Guide, and 13″ Color TV Monitor (NTSC format)
PZMTIV-BS-CCTV	PZMTIV Microscope Video System on Boom Clamp Stand

Please see web site for complete configurations

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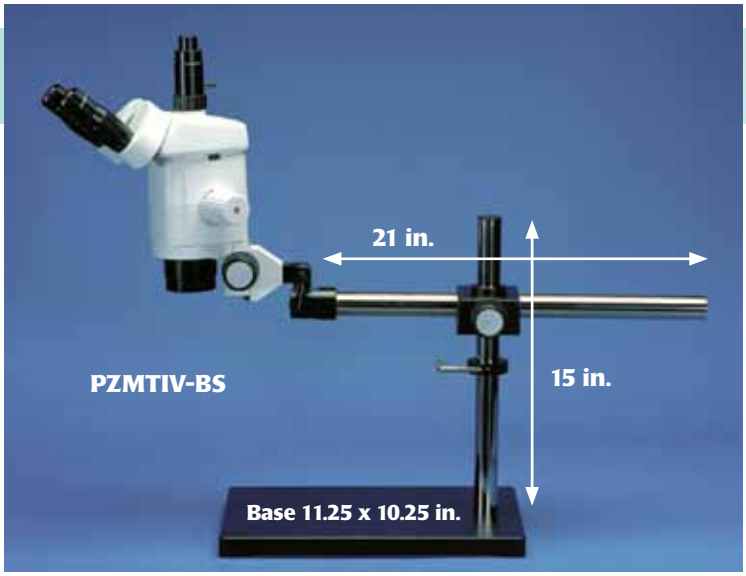
PZMIV



PZMIV & PZMTIV Eyepieces and Objectives

	10x Eyepiece		16x Eyepiece		20x Eyepiece		25x Eyepiece		
Objective	**Mag**	**Field (mm) *(Video Field)***	**Mag**	**Field (mm) *(Video Field)***	**Mag**	**Field (mm) *(Video Field)***	**Mag**	**Field (mm) *(Video Field)***	**Working Distance**
0.32x	1.9x - 16x	106 -13.1 *(49.8 - 6.1)*	3.2x 25.6x	70.6 - 8.8 *(49.8 - 6.1)*	3.9x - 32x	55.4 - 6.9 *(49.8 - 6.1)*	5x - 40x	45.4 - 5.6 *(49.8 - 6.1)*	296 mm
0.5x	3.1x - 25x	67.7 - 8.4 *(31.8 - 3.95)*	5x - 40x	45.2 - 5.6 *(31.8 - 3.95)*	6.2x - 50x	35.5 - 4.4 *(31.8 - 3.95)*	7.8x - 62.8x	20 - 3.6 *(31.8 - 3.95)*	187 mm
0.63x	3.9x - 31.5x	53.8 - 6.7 *(25.3 - 3.15)*	6.2x - 50.4x	35.8 - 4.4 *(25.3 - 3.15)*	7.8x -63x	28.2 - 3.5 *(25.3 - 3.15)*	9.8x - 78.8x	23 -2.9 *(25.3 - 3.15)*	149 mm
1.0x (inc)	6.2x - 50x	33.9 - 4.2 *(15.9 - 1.97)*	9.9x - 90x	22.6 - 2.8 *(15.9 - 1.97)*	12.4x - 100x	17.7 - 2.2 *(15.9 - 1.97)*	15.5x - 125x	14.5 - 1.8 *(15.9 - 1.97)*	80 mm

The Video Field is based on a ½-inch CCD (8 mm diagonal) and a 0.5x camera adapter.

OPTIONAL ACCESSORIES

502000	PZMIV Binocular Body With 10X Eyepieces, 1X Objective, Eye guards
502001	PZMTIV Trinocular Body With 10X Eyepieces, 1X Objective, Eye guards
502004	Boom Stand W/O Focus Mount (requires 502009 Focus Mount for PZMIV)
502005	Ball Bearing Boom Stand W/O Focus Mount (requires 502009 Focus Mount for PZMIV)
502006	Boom Clamp Stand (requires 502009 Focus Mount for PZMIV)
502007	Articulated Arm and Table Clamp w/o Focus Mount (requires 502009 Focus Mount for PZMIV)
502009	Universal Focus Mount for 76 mm PZMIV (Required for BS, AAC, BBS, and BCS) (5/8" pin)
502160	Lighted Fan Base, Fluorescent base, Tungsten Halogen beam
502010	10X Wide Field Eyepiece for PZMIV (pair)
502011	16X Wide Field Eyepiece for PZMIV (pair)
502012	20X Wide Field Eyepiece for PZMIV (pair)
502013	25X Wide Field Eyepiece for PZMIV (pair)
502015	Ring Light Adapter for PZMIV (For R-8-8-WPI01 Ring Light Guide)
502016	0.32x, Planachromatic Objective (Distortion-free) (296 mm WD)
502017	0.50x, Planachromatic Objective (Distortion-free) (187 mm WD)
502018	0.63x, Planachromatic Objective (Distortion-free) (149 mm WD)
502019	1.0x, Planachromatic Objective (Distortion-free) (80mm WD)
500261	0.35x CCD Camera Coupler, C-Mount (Use with USBCAM33)
500262	0.5x CCD Camera Coupler, C-Mount (Use with COLCAM)
500028	1x CCD Camera Coupler, C-Mount (Use with COLCAM)
502163	Wall Mount Plate for Articulated Arm System
NOVA	NOVAFLEX Fiber Optic Illuminator
500186	Bifurcated Light Guide with Lenses
R-8-8-WPI01	Ring Light Guide
NOVA-186	NOVAFLEX Fiber Optic Illuminator with Bifurcated Light Guide and Lenses
EJA	Replacement Lamp for NOVAFLEX
502167	Replacement Fluorescent lamp for Lighted Fan Base (502160)
502168	Replacement Tungsten Halogen lamp for Lighted Fan Base (502160)
COLCAMNTSC	Video Camera 1/2" CCD (8 mm diagonal)
COLCAMPAL	Video Camera 1/2" CCD (8 mm diagonal)
DC2000M	Digital Camera 1/3" CCD (6 mm diagonal)

CCD Camera Couplers – *C-Mount, available as 0.3x, 0.5x and 1x.*

PZMIV SPECIFICATIONS

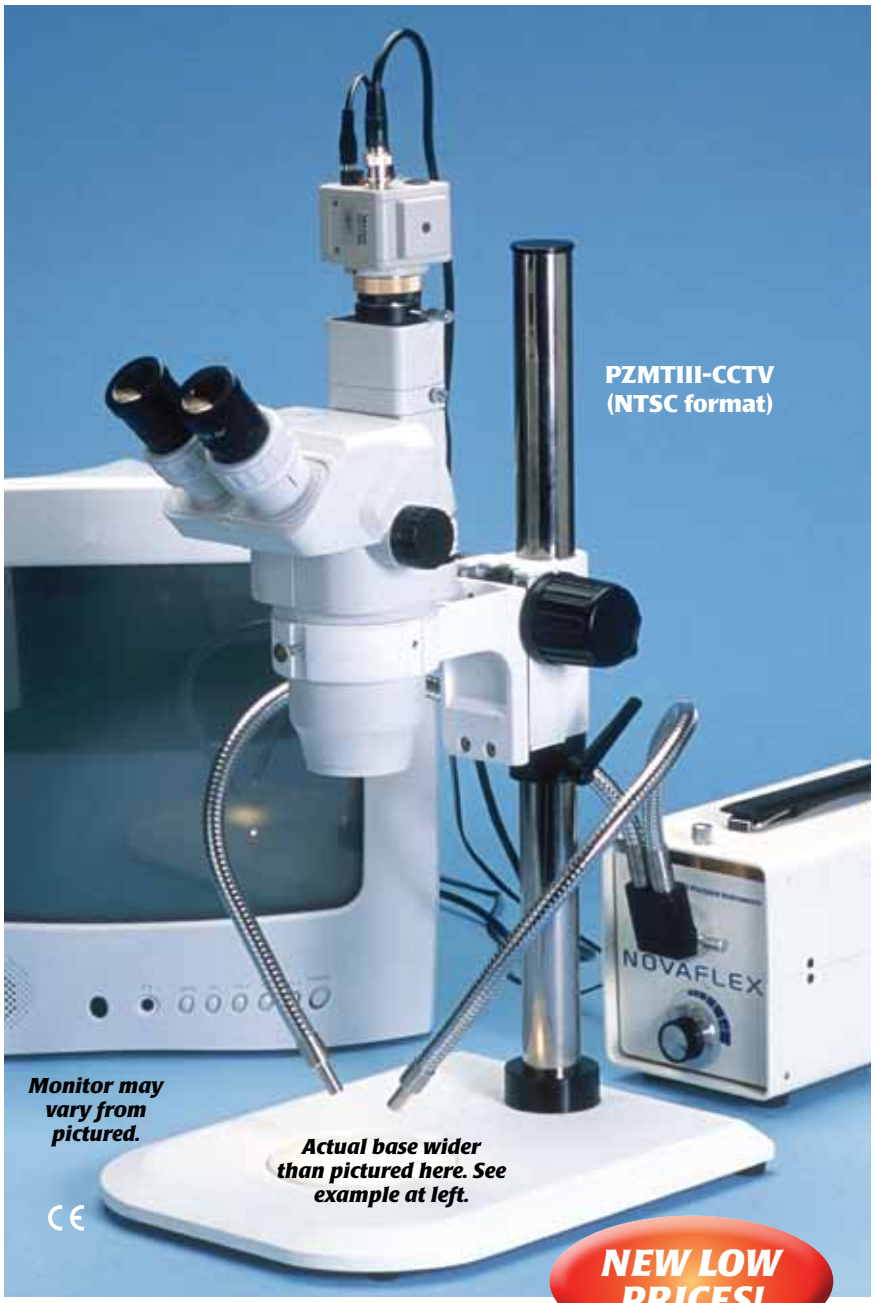
EYEPIECES	WFH 10×
AUXILIARY LENSES	1×
ZOOM RANGE	0.62× - 5×
TOTAL MAGNIFICATION	6.2× - 50×
ZOOM RATIO	8 : 1
FIELD OF VIEW	∅33.9- ∅4.2 mm
WORKING DISTANCE	80 mm
BINOCULAR TUBE	Inclined 45°
INTERPUPILARY DISTANCE	50 – 75 mm
DIOPTER ADJUSTMENT	± 5 Diopter
MICROSCOPE BODY	Rotatable 360°
OPTIONAL ACCESSORIES	
Eyepieces	16×, 20×, 25×
Auxiliary lenses	0.32×, 0.5×, 0.63×
Total Magnification	1.9× - 125×
Field of view	∅106 - ∅1.8 mm
Working Distance	80 – 296 mm
SHIPPING WEIGHT	23 lb.

Prices shown are in U.S. dollars. Actual charges will vary because of import duty, freight, and currency fluctuations. To obtain an exact quotation, contact your WPI office.

Precision Stereo ZOOM Microscope

Quality and Precision to Improve Your Vision

WPI's third-generation stereomicroscope, **PZMIII**, is an ideal tool for tissue dissection, cell injection, specimen manipulation, electrode inspection, and many other applications that require a magnified, stereo viewing and ample working distance. It offers the leading brand's quality and performance at an affordable price. Advanced optics provide the sharpest image that can only be found among the best of this class. It is superior to many stereomicroscopes costing almost twice as much. Zooming is achieved by a spring-loaded nub that is smooth and effortless. The compact size and light weight make it more stable and easily manipulated on the boom stand. A specially designed photo/video module can easily upgrade the binocular PZMIII to a trinocular microscope at any time for photo, video, or digital imaging. In addition, an extensive list of optional accessories is available that can make the PZMIII suitable for almost any bio-research applications requiring a stereomicroscope. See next page for options.



PZMIII	Precision Stereo Zoom Microscope (Model III), on Post Stand
PZMIII-BS	PZMIII Microscope on Boom Stand
PZMIII-AAC	PZMIII Microscope on Articulated Arm with Table Clamp
PZMTIII	Precision Stereo Zoom Trinocular Microscope (Model III)
PZMTIII-CCTV	PZMTIII Microscope Video System, including PZMTIII, COLCAM Color Video Camera, 0.5X CCD Camera Coupler, Novaflex Optical Illuminator, Bifurcated Optical Fiber Light Guide, and 13" color TV monitor (NTSC format)
PZMTIII-BS	PZMTIII Microscope on Boom Stand
PZMTIII-AAC	PZMTIII Microscope on Articulated Arm with Table Clamp
PZMTIII-BS-CCTV	PZMTIII Microscope, Boom Stand, Video System
PZMTIII-AAC-CCTV	PZMTIII Microscope, Articulated Arm, Video System
COLCAMNTSC	Video Camera 1/2" CCD (8 mm diagonal)
COLCAMPAL	Video Camera 1/2" CCD (8 mm diagonal)

All PZMIII and PZMTIII microscopes come with 10x eyepieces and built-in 1x auxiliary lens.

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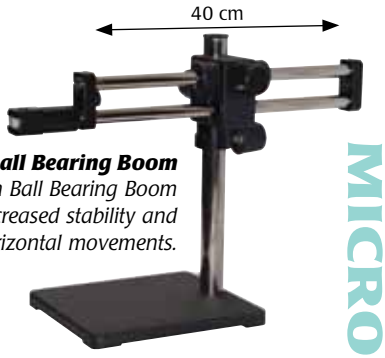
PZMIII-BS

#502007 Articulated Arm

#502163 Wall-Mount Plate – *Mount the microscope on the wall for convenient storage when space is tight.*



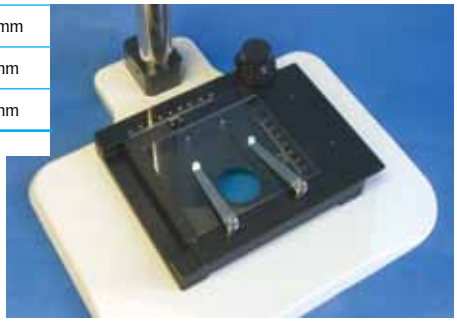
#502005 Ball Bearing Boom Stand – *Dual Arm Ball Bearing Boom Stand for increased stability and smoother horizontal movements.*

PZMIII Eyepieces and Objectives

	10x Eyepiece		15x Eyepiece		20x Eyepiece		25x Eyepiece		
Objective	**Mag.**	**Field (mm) *(Video Field)****	**Mag.**	**Field (mm) *(Video Field)****	**Mag.**	**Field (mm) *(Video Field)****	**Mag.**	**Field (mm) *(Video Field)****	**Working Distance (mm)**
0.3x	2x - 13.5x	114 - 17 *(53.6 - 8)*	3x - 20.3x	84 -13 *(53.6 - 8)*	4x -27x	69 - 10.3 *(53.6 - 8)*	5x - 33.8x	44.8 - 6.7 *(53.6 - 8)*	287 mm
0.4x	2.7x - 18x	86 - 13 *(40.4 - 6.1)*	4x - 27x	63 - 9 *(40.4 - 6.1)*	5.4x - 36x	52 - 7.7 *(40.4 - 6.1)*	6.7x - 45x	33.6 - 5.0 *(40.4 - 6.1)*	217 mm
0.5x	3.4x - 22.5x	69 - 10 *(32.4 - 4.7)*	5x - 33.8x	51 - 7 *(32.4 - 4.7)*	6.7x - 45x	42 - 6.2 *(32.4 - 4.7)*	8.4x - 56.3x	26.9 - 4.0 *(32.4 - 4.7)*	177 mm
0.75x	5x - 33.8x	45 - 7 *(21.1 - 3.3)*	7.5x - 50.6x	34 - 5 *(21.1 - 3.3)*	10x - 67.5x	28 - 4.2 *(21.1 - 3.3)*	12.6x - 84.4x	17.9 - 2.7 *(21.1 - 3.3)*	117 mm
1.0x	6.7x - 45x	34 - 5 *(16 - 4.7)*	10x - 67.5x	25 - 3.7 *(16 - 4.7)*	13.4x - 90x	21 - 3.1 *(16 - 4.7)*	16.8x - 112.5x	13.4 - 2.0 *(16 - 4.7)*	100 mm
1.5x	10x - 67.5x	23 - 3.4 *(10.8 - 1.6)*	15x - 101.3x	17 - 2.5 *(10.8 - 1.6)*	20.1x - 135x	14 - 2.1 *(10.8 - 1.6)*	25.1x - 168.8x	9.0 - 1.3 *(10.8 - 1.6)*	47 mm
2.0x	13.4x - 90x	12 - 2.5 *(5.6 - 1.17)*	20.1x - 135x	13 - 1.8 *(5.6 - 1.17)*	26.8x - 180x	10 - 1.5 *(5.6 - 1.17)*	33.5x - 225x	6.7 - 1.0 *(5.6 - 1.17)*	26 mm

** The video field of view is based on a 1/2-inch (8 mm diagonal) CCD camera and a 0.5x camera adapter.*

#501381 0.5x C-mount CCD Camera coupler – *Use with cameras which have 0.5-in. CCD.*



#503051 Manual Stage – *Mounts in the circular opening in the PZMiii base. XY travel distance: 75 x 56 mm. Glass size: 116 x 96 mm. Active diameter: 37.6 mm. Dimensions: 180 x 155 x 27 mm.* ***Fits 503102 base only.***

OPTIONAL ACCESSORIES

501352	PZMIII Binocular Body, pair of 10x eyepieces and eyeguards *13338 Ring Light Adapter NOT included*
501353	Fan Post Stand with 76mm Focus Mount
502009	Universal Focus Mount, 76 mm ID for PZMIII Body
502004	Boom Stand without Focus Mount
502005	Ball Bearing Boom Stand without Focus Mount
502007	Articulated Arm with Table Clamp, without Focus Mount
502163	Wall-Mount Plate, 6" x 6" (or 15.24 cm x 15.24 cm)
501367	Universal Focus Mount, 83mm ID for PZM Body
501369	Wide Field 10x Eyepieces (pair)
501370	Wide Field 15x Eyepieces (pair)
501371	Wide Field 20x Eyepieces (pair)
501372	Wide Field 25x Eyepieces (pair)
501373	0.3X Long Working Distance Objective Lens
501375	0.5x Long Working Distance Objective Lens
501376	0.75x Long Working Distance Objective Lens
501377	1.5x Long Working Distance Objective Lens
501378	2.0x Long Working Distance Objective Lens
501379	PZMTIII Trinocular Body, pair of 10x eyepieces and eye guards *13338 Ring Light Adapter NOT included*
501381	0.5x C-Mount CCD Camera Coupler
13338	Ring Light Adapter for PZMIII Series *(included with all microscope configurations on previous page)*
503051	Manual Stage for PZMIII
500264	Reticle in 10x Eyepiece, 30 mm version, 100 divisions per mm
500266	Reticle in 20x Eyepiece, 0-90°, 200 divisions per mm
503102	76mm Rectangular Base Post Stand for PZMIII

PZMIII SPECIFICATIONS

EYEPIECES	WFH 10x
ZOOM RANGE	0.67x - 4.5x
TOTAL MAGNIFICATION	6.77x - 45x
FIELD OF VIEW	∅ 34 MM - ∅ 5 MM
WORKING DISTANCE	100 mm
BINOCULAR TUBE	Inclined 45°
INTERPUPILLARY DISTANCE	Adjustable 47-70 mm
DIOPTER ADJUSTMENT	±5 Diopter (both eyepiece tubes)
MICROSCOPE BODY	Rotatable 360°
AUXILIARY LENSES	
Total magnification	2x - 225x
Biggest Field of View	∅ 110 mm
Working Distance	26-287 mm
SHIPPING WEIGHT	23 lb.

Inverted Trinocular Microscope

Video camera available separately – see page 210.
Trinocular Head
Ideal for video/photography
Centering eyepiece for phase objective
EW 10X /22 extra wide field eyepieces
Condenser
Abbe condenser with 20X phase
Racks
Adjustable condenser rack
Adjustable illuminator rack
Stage
160 x 260 mm
Inserts: 35 mm round, 50 mm round, 87x46 rectangular
Auxiliary stage, 70 x 180 mm
Coaxial drive controls
Optional mechanical stage: X-Y coaxial control; 120 x 78 mm range of traverse
NEW!
Nosepiece
Quintuple nosepiece
Objectives
Infinity Optical System
Objectives: Plan 4X and 40x, Plan Phase 10x and 20x
Illumination
6V/30W halogen bulb
Fixed Stage
Optics move during focusing - excellent for patch clamp and brain slice recording
Focus
Coarse adjustment: range of 37.7mm
Fine adjustment: 0.2mm per rotation
Vertical objective movement

Accessories Included
Green, blue and neutral filters, dust cover, immersion oil.

Options
Multiple photo options

Weight
24 lb (10.9 kg)

INV-101	Trinocular Inverted Microscope
503510	30 mm 10X Eyepiece with 100/10 reticle
503520	Replacement lamp
503512	Deluxe Optical Cleaning Kit

All necessary tools are included for routine adjustments, alignments, and assembly: 8 oz. Air Duster, 280 sheets lint-free lens paper, 1 oz. "no-residue" lens cleaning fluid, 100 cotton-tipped applicators, 9x9 microfiber lens cloth, soft-bristled dusting brush, micro-glide gear lubricant, allen wrenches, double-sided friction collar wrench, precision screwdriver set, nylon carry case

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Research-Grade Microscope

Camera not included

The GPL-T Modular Lab Scope features exceptional optical quality and expandability for top-notch performance in the lab. The 10x/20 high-point Plan eyepieces on super-wide eyetubes offer an extremely broad field of view, with ample eye relief for users who wear eyeglasses. The Infinity Plan optics match quality with value within any lab's budget.

GPL-T SPECIFICATIONS

HEAD	True Trinocular (Seidentopf) with 0.40x C-mount Diopter adjustment Inclined 30°, rotates 360° 10X/20 high point eyepieces Interpupillary distance range 50-75 mm
NOSEPIECE	Reverse quadruple nosepiece
OBJECTIVES	Infinity Plan 4X, 10X, 40XR, 100XR (oil) Anti-fungal, parfocal, parcentric, color-coded
STAGE	Mechanical stage (160 mm x 140 mm) XY Movement: 77 mm x 50mm Slow-close hydraulic slide finger, Dual slide holder
FOCUS	Coarse adjustment: range of 20 mm Fine adjustment: graduation of 2 µm
ILLUMINATION	Koehler Illumination, Moveable Abbe condenser, NA 1.25 Dual Iris diaphragms Variable Halogen light source (12V/20W bulb) Input 90-240V / 50-60Hz automatic switching
ACCESSORIES INCLUDED	One 2-amp fuse, spare 12V/20W bulb, blue, green, and yellow filters, dust cover, immersion oil, manual and warranty card
DIMENSIONS AND WEIGHT	16.5″ (42cm) x 10.625″ (27cm) x 7.875″ (20cm) 19.5 lb. (9 kg)

GPL-T	Research Grade Microscope Trinocular
503510	30 mm 10X Eyepiece with 100/10 reticle
503511	Replacement lamp
503512	Deluxe Optical Cleaning Kit

All necessary tools are included for routine adjustments, alignments, and assembly: 8 oz. Air Duster, 280 sheets Lint-Free Lens Paper, 1 oz. "No-Residue" Lens Cleaning Fluid, 100 Cotton-Tipped Applicators, 9x9 Microfiber Lens Cloth, Soft-Bristled Dusting Brush, Micro-Glide Gear Lubricant, Allen Wrenches, Double-Sided Friction Collar Wrench, Precision Screwdriver Set, Nylon Carry Case

W30 Professional-Grade Microscope

The W30 professional-grade microscope is a best-seller in universities, medical schools, and reseach laboratories. Equipped for performance, its features include titanium-finished DIN or Semi-Plan optics and a 30-year anti-fungal coating. The W30 is the choice for superior performance at a great price.

W30S SPECIFICATIONS

HEAD	Binocular (Seidentopf) True Trinocular Inclined 30°, rotates 360° Dual diopter adjustment, Interpupillary distance range 55-75 mm 10X/18 wide field eyepieces
NOSEPIECE	Quadruple forward-facing nosepiece
OBJECTIVES	DIN Plan, anti-fungal 4X, 10X, 40X, 100XR (oil) Parfocal, parcentric, color-coded
STAGE	Mechanical stage (140 mm x 140 mm) Coaxial drive controls XY Movement: 73 mm x 43 mm
FOCUS	Coarse adjustment: range of 30 mm Fine adjustment: graduation of 2 µm Tension control knob
ILLUMINATION	Moveable Abbe condenser, NA 1.25, Iris diaphragm Variable halogen light source (12V/20W bulb) 110V/220V switchable electronics
ACCESSORIES INCLUDED	Three 0.5 amp fuses, mirror attachment (for field use), blue and green filters, dust cover, immersion oil, spare bulb
DIMENSIONS AND WEIGHT	15″ (38 cm) x 9″ (23 cm) x 7″ (17.8 cm) 14 lb. (6.4 kg)

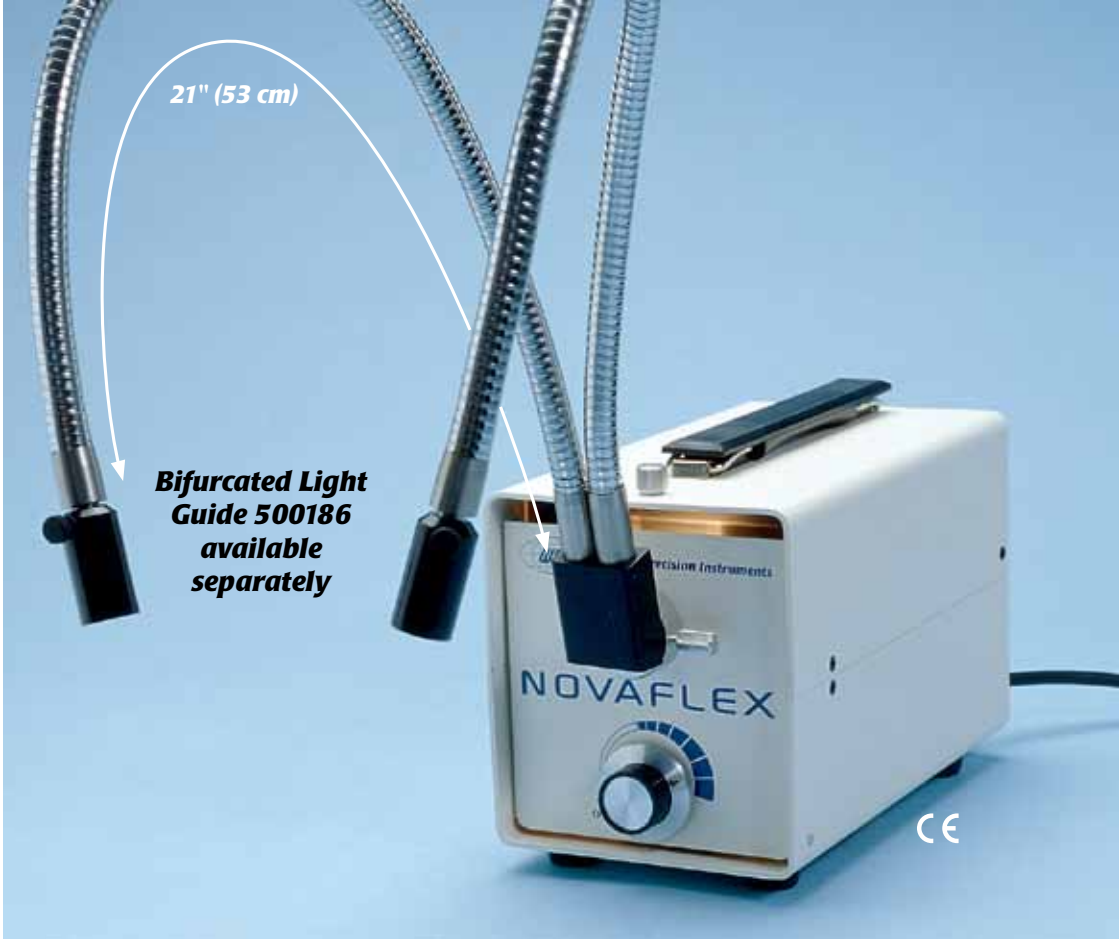
W30S	Binocular Microscope
W30ST	Trinocular Microscope
503513	21 mm 10X Eyepiece with 100/10 reticle
503514	Replacement Lamp

High intensity source for fiber optic illumination

The **NOVAFLEX** Fiber Optic Illuminator provides reliable, uninterrupted high-intensity light for microscopes and fiber optic spectrometers. The most widely used halogen light source, **NOVAFLEX** allows a continuous range of subdued or concentrated lighting controlled by a rotary dimmer on the front panel. **NOVAFLEX** may be used with a ring light and single or bifurcated flexible fiber bundles, enabling the light beam to be placed exactly where needed. Forced air cooling prolongs lamp life. **EJA** lamp color temperature is 3350°K. An interlock switch automatically cuts off power when front panel is opened to replace bulb. Rugged aluminum case.

Size: *24 x 13 x 16 cm (9.375 x 4.75 x 6.25 in.)*

Weight: *4.8 kg (9 lb)*



NOVA	NOVAFLEX Fiber Optic Illuminator (115 V, 60 Hz)
NOVA-Z	NOVAFLEX Fiber Optic Illuminator (230 V, 50 Hz)
NOVA-186	NOVAFLEX Illuminator & Bifurcated Light Guide

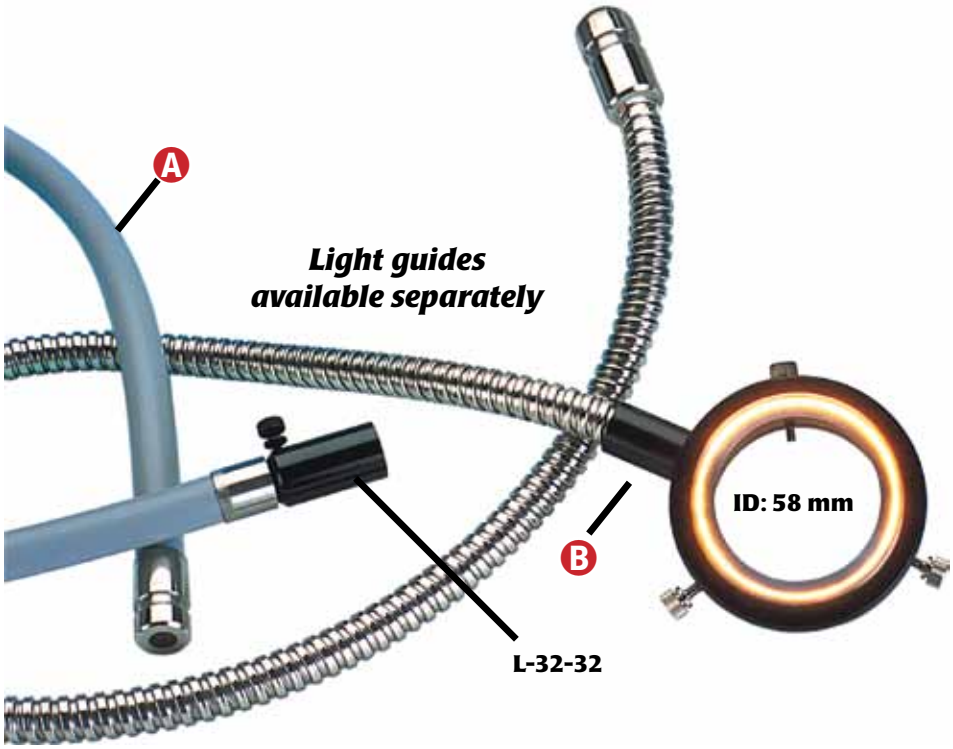
LIGHT GUIDES AND ACCESSORIES

500186	Bifurcated Light Guide (with lenses)
R-8-8-WPI01	Ring Light Guide for PZM and PZMIII Series*

**Requires adapter #13338 for use with PZM, PZMII and PZMIII.*

13338*	Ring Light Adapter (48 mm ∅) for PZM, PZMII, PZMIII
502015*	Ring Light Adapter for PZMIV
SI-72-8	Flexible Light Guide, 72 in. (183 cm) *Requires L-32-32*
SI-40-8	Flexible Light Guide, 40 in. (102 cm) *Requires L-32-32*
L-32-32	Lens for SI-40-8 and SI-72-8
5475	Adapter for SMA-terminated Fiber Optic Cables
EJA	Replacement Lamp, 150 Watt

** A ring light adapter is included with each PZMIII and PZMIV microscope. Flexible light guides SI-72-8 and SI-40-8 are not self-supporting*



NOVA SPECIFICATIONS

LAMP	150 W quartz halogen
SIZE	24×13×16 cm (9.375×4.75×6.25 in.)
POWER	115 VAC, 50/60 Hz, 3 A
WEIGHT	4.8 kg (9 lb)

A Flexible Light Guides SI-40-8 and SI-72-8, with 8 mm diameter fiber and non-metallic sheath, are suitable for use in a Faraday cage. (Lens L-32-32 available separately.)

B Ring Light R-8-8-WPI01 can be used with PZM Stereo Microscope for shadow-free illumination. 18-in. (46 cm) flexible cable

Prices shown are in U.S. dollars. Actual charges will vary because of import duty, freight, and currency fluctuations. To obtain an exact quotation, contact your WPI office.

UK: Tel: 01438-880025 • wpiuk@wpi-europe.com **Germany: Tel:** 030-6188845 • wpide@wpi-europe.com **China: Tel:** 21 68885517 • chinasales@china.wpiinc.com

Precision Heater Controller

Smart, electrically quiet air heater for live cell imaging systems and custom incubators

Maintenance of the desired temperature set-point can now be achieved through the use of a precision, shielded temperature probe coupled to a peripheral Air-Therm heating unit.

Precision: Noise is a major concern in any experimental application. WPI's Air-Therm™ is electrically quiet as well as acoustically quiet). Since the Air-Therm can be placed away from the incubator, any residual electrical and vibrational interference from the heater is virtually eliminated. Accuracy of ±0.1°C can be routinely maintained at the sample site (using a fully programmable differential algorithm to automatically adjust the temperature on the Air-Therm unit). Air-Therm maintains a uniform temperature across the microscope stage (allowing for uniform heating of multiwell dishes). These tight tolerances result in minimal focal drift once sample/incubator equilibrium has been achieved.

Glass Bottom Dishes: For high numerical aperture (NA) live-cell imaging, cells must be plated on glass (*e.g.*, WPI's FluoroDish Glass Bottom Dishes, spotting 0.17 mm glass thickness) or standard cover slips. Since cover slips inherit other problems associated with sterility and accidental damage to expensive microscope condensers, WPI designed new and improved glass bottom dishes (35 mm x 10 mm or 35 mm X 22 mm) that are *not cytotoxic*. A special adhesive in conjunction with an advanced dish design makes the FluoroDish the only non-cytotoxic glass dish in the world. *(See page 210.)* This means that cells can actually be cultured for 4 to 5 days in the same dish and then carry the complete cell culture with media from the incubator directly into the (Air-Therm controlled) recording chamber. This is a comfort level that hitherto was unattainable by scientists and clinical researchers since cells will have to be transported from the culture dishes on to cover slips just prior to imagery or attaching patch electrodes.

Chamber: The most problematic aspect of any live cell imaging procedure or patch clamp approach is the thermal drift of high magnification lenses caused by temperature fluctuations in the microscope's environment. It is necessary to constantly readjust the focus during image acquisition due to this thermal-drift, introducing artifacts during quantitative microscopy due to the photo-bleaching that occurs during refocusing. The optimal solution to this problem is to use WPI's Air-Therm temperature controller connected to a Plexiglas or acrylic chamber that encloses the entire imaging area (or at least the objectives and the stage). Using such a chamber will result in highly stable temperature control and minimal thermal drift.

AIR-THERM SPECIFICATIONS

AIR FLOW RATE	20 to 50 CFM (0.55 to 1.4 cubic meter/M)
CONTROL TEMP. RANGE	Ambient to 60°C
TEMPERATURE RESOLUTION	0.1 °C
TEMPERATURE ACCURACY	0.2 °C
CONTROL MODES	(a) Auto (PID set manually, or Self-Tune) (b) Manual tune
ANALOG OUTPUT FOR CHART RECORDER	0.5°C resolution 0-10V, 0 to 100 C (default, adjustable via controller)
HEATING VOLUME	More than 4 cu ft (85 liter), non-circulating
POWER (CE)	300 W, 95-135 V or 220-240 V, 50/60 Hz
DIMENSIONS	61/2 x 8 x 71/2 in. (15.5 x 21 x 19 cm)
SHIPPING WEIGHT	10 lb (4.5 kg)

AIRTHERMY-ATX Air-Therm Heater 120 V, U.S.
AIRTHERMZ-ATX Air-Therm Heater 240 V *Specify line cord*
2 pieces of 4.5 ft clear, coil-reinforced heater hose included with Air-Therm.
Specify Line (Mains) Voltage

OPTIONAL ACCESSORIES

15590	Clear hose, 2.5″ diam., 4.5 ft
300276	Replacement platinum temperature probe
3491	5 ft (1.5m) probe extension cable

Digital Microscope Cameras

USBCAM100

This high performance camera incorporates a half-inch 2048×1536 CMOS image sensor (**3.1 Megapixels**) capable of operating up to 12 frames per second (fps) with full resolution and at near video quality (27 fps) at XGA (1024×768) resolution. That is nearly three times faster than a CCD. By combining the speed of this camera and a proprietary driver with Twain for Windows XP and Vista, you get real-time imaging. That means no offline processing. Using USB 2.0 connectivity to transfer images to a computer, the simple plug-and-play software allows the resolution to be easily modified.

The USBCAM100 includes **XLICap** software that features:

- Simple layout with toolbar
- Pan and Zoom
- Selectable image resolutions
- Mirror/Flip/Rotate image
- Variety of file formats
- Record live video
- Email a screen shot
- On-screen annotation and time/date stamping
- Freeze image at any time
- Copy to clipboard and paste into other applications
- Automatic one-touch white balance
- Color or black and white mode
- Save and restore Custom Preference Profiles

USBCAM100	Digital Microscope Camera, 1/2-in. CMOS

USBCAM33 / USBCAM50

Record images directly to your computer. These digital microscope cameras offer flexibility, with a range of configurations for image capture, a choice of mount option (C or CS) and file output alternatives. Since both cameras connect via the USB port, installing the image capture software is simple. Either camera can be used on WPI's stereo microscopes **PZMTIV**, **PZMTIII**, compound microscopes **W30ST** and **GPL-T** and also the **PSMT5** Surgical Microscope. Choose from the one third-inch CCD with 1024×768 resolution and 30 frames per second (**USBCAM33**) or one half-inch CCD with 1360×1024 resolution and 15 frames per second (**USBCAM50**).

These cameras include **IC Imaging Control** 3.0 software that features:

- Real-time video preview
- Text and graphics can be drawn on a live video stream
- Scroll and Zoom
- Acquisition of single frames
- Capture pause, for intermittent image capture
- Timestamps

USBCAM33	Digital Microscope Camera, 1/3-in. CCD
USBCAM50	Digital Microscope Camera, 1/2-in. CCD
503536	Cable, USB Extension (male-female)

	USBCAM33	**USBCAM50**	**USBCAM100**
IMAGE SENSOR	1/3" Sony CCD, progressive scan	1/2" Sony CCD, progressive scan	1/2-in. CMOS, 3.1 M pixels
MAX RESOLUTION	1024x768	1360x1024	2048 x 1536, 1024 x 768
SIZE	4.65 µm x 4.65 µm	4.65 µm x 4.65 µm	3.2 µm x 3.2 µm
SPEED (PC DEPENDENT)	30fps, 15fps, 7.5fps or 3.75fps @1024x768BY8; 15fps, 7.5fps or 3.75fps @ 1024x768UYVY	15fps, 7.5fps or 3.75fps @ 1280x960BY8; 7.5fps or 3.75fps @ 1280x960UYVY	up to 12 fps @ 2048 x 1536; up to 27 fps @ 1024 x 768
WAVELENGTH (nm)	450-700	450-700	400-1000
DYNAMIC RANGE	ADC: 10 bit, output: 8 bit	ADC: 10 bit, output: 8 bit	>52 dB
SENSITIVITY	0.5 lux @ 1/15 s	0.5 lux @ 1/7.5 s	1 v/lux-sec
FILE FORMAT	BMP, JPG	BMP, JPG	BMP, TIFF, JPG
EXPOSURES	Automatic/Manual	Automatic/Manual	Automatic/Manual
SHUTTER CONTROL	Automatic/Manual	Automatic/Manual	Automatic/Manual
PROGRAMMABLE CONTROL	Toolbar options for time image sequencing and recording	Toolbar options for time image sequencing and recording	Image size, brightness, gain, exposure time
WORKING TEMPERATURE	-5°C ~ 45°C	-5°C ~ 45°C	-50°C ~ 70°C
INTERFACE	USB 2.0 cable	USB 2.0 cable	USB cable, 2 m
SYSTEM REQUIREMENT	Windows XP, 2000, Vista	Windows XP, 2000, Vista	Windows XP, (SP2), 2000, Vista
SOFTWARE	IC Imaging Control Software	IC Imaging Control Software	Image-processing software: XLICap, Driver for USB 2.0
LENS MOUNT	C/CS-Mount	C/CS-Mount	C-Mount
CAMERA BODY	50.6 x 50.6 x 50 mm	50.6 x 50.6 x 50 mm	86 x 30 x 60 mm
WEIGHT	265 g (9.5 oz)	265 g (9.5 oz)	136 g (4.8 oz)
WHITE BALANCE	Automatic/Manual	Automatic/Manual	Tungsten, Fluorescent

Prices shown are in U.S. dollars. Actual charges will vary because of import duty, freight, and currency fluctuations. To obtain an exact quotation, contact your WPI office.

UK: Tel: 01438-880025 • wpiuk@wpi-europe.com **Germany: Tel:** 030-6188845 • wpide@wpi-europe.com **China: Tel:** 21 68885517 • chinasales@china.wpiinc.com

Color Video Camera for Microscopy

- Sensitivity of 0.2 lux @ f1.2
- Resolution of 470 TV lines
- No burn in, no image lag, no geometric distortion.
- Magnetically shielded.
- Composite video out at 1 Vpp @ 75 ohms.
- Power consumption under <2W @ 12VDC
- S/N ratio 52 dB, typ., 60 dB max.
- Gamma of .45.
- Operating temperature range of −20 to 50°C.
- White balance color temperature switchable
- Includes standard tripod mount, power supply, 6-ft (~2m) BNC cable, RCA adaptor.

COLCAM

Specifically chosen for its high quality video imaging and large 1/2" CCD (8mm), the Colcam is the clear choice for WPI Trinocular microscopes. This camera was specifically detailed for use with WPI standard C-mount couplers to assure the quality capture of still images and video. COLCAM incorporates the latest CCD image sensor for color signal output to "NTSC" (North American) or "PAL" (European) video systems.

A high signal-to-noise ratio of 50 dB permits clear images with low light levels. A C-mount is required for use with microscopes. Includes a standard tripod mount, power supply and 6-ft BNC-terminated cable with an RCA adaptor. ***(Lens not included.)***

COLCAM SPECIFICATIONS		
	NTSC	**PAL**
Image Device	1/2-inch CCD	1/2-inch CCD
Picture Elements	811 x 508	795 x 596
Scanning System	525 lines, 60 fields / sec	625 lines, 50 fields / sec
Min. Illumination	0.2 Lux/F1.2 (5600°K)	
Resolution	470 TV lines	
Dimensions	35 x 35 x 42 mm (1.4" x 1.4" x 1.7")	
Weight	< 300 g	

COLCAMNTSC	Color CCD Video Camera, NTSC (120 V, US plug)
COLCAMPAL	Color CCD Video Camera, PAL (240 V, Specify British or Euro plug)

Microscope Mount: Please specify model of microscope when requesting a quote. If PAL is needed in 120-volt systems or NTSC in 240-volt systems, please specify.

C-Mount Eyepiece Adapters

For 1/4-inch (4mm diagonal), 1/3-inch (6 mm diagonal) and 1/2-inch (8 mm diagonal) video cameras and eyepiece camera conversion, this lens and its accessories make it possible to connect a typical video or C-mount camera to almost any microscope on the market. The lens fits right into the ocular socket of standard 23.2 mm microscopes and the 30 mm adapter allows for use on the typical stereo zoom microscope. If you already have a trinocular microscope you can add the included C-Adapter to the top of an existing 1X C-mount (no lens) adapter. For a list of 1X C-mounts for popular microscopes, visit WPI's website and search for "C-mounts".

503097	Adapter, 0.45X for 1/3-in. and 1/2-in. video cameras, 30 mm Stereo adapter, 1X C-mount adapter
503098*	Adapter, 0.28X for 1/4-in. video cameras, 30 mm Stereo adapter, 1X C-mount adapter

** For adapter 503098 to mount properly, the 1/4-inch CCD camera must have a minimum of 13 mm clearance, measured from the front of the C-mount ring to the CCD surface.*

SLR Digital Camera-to-Microscope Eyepiece Adapter

This adapter connects T-mount SLR digital cameras to almost any microscope on the market. The adapter is built to 23.2 mm ocular tubes that are found on most high magnification (upright, inverted, standard) microscopes. The 30 mm adapter allows mounting on most Stereo zoom microscopes that use 30 mm oculars. If you already have a trincocular microscope you can add this adapter to the top of an existing 1X C-mount adapter. For a list of 1X C-mounts for popular microscopes, visit WPI's website and search for "C-mounts"

The 2X magnification of this microscope adapter yields an approximate 65% field of view from the visual field as measured on a Canon 10D Digital camera. (CCD Sensor size = 22.7 x 15.1 mm). 35 mm film reference size is 24 x 36 mm.

Please contact your camera dealer for a suitable T-mount to bayonet adapter for your camera.

503099	Adapter, 2.0X for SLR digital Cameras (includes 30 mm Stereo adapter, 1X C-mount adapter)

FluoroDish™

Cover-glass bottom for observing and growing cells in imaging related research

- ***Optical quality glass bottom for better imaging quality (RI=1.525)***
- ***Low sample volume for expensive chemicals***
- ***Lowest access angle for micropipette***
- ***Low toxicity adhesive for embryo research***

WPI's **FluoroDish™** tissue culture dishes are now available in a larger range of sizes and coatings. These polycarbonate dishes provide exceptional imaging quality for many applications requiring the use of inverted microscopes such as high resolution image analysis, microinjection and electrophysical recording of fluorescent-tagged cells. Taking advantage of WPI's extensive experience with low toxicity adhesives, FluoroDish uses a specially formulated adhesive that is optically clear, durable and with extremely low toxicity. Tests by an independent laboratory have shown that the 96-hour surviving rate of embryos is 100% when kept in FluoroDish, substantially better than some other brands. The bottom glass has superior UV transmission (30% transmission at 300 nm, compared to less than 7% for the most popular German glass). Stringent quality control ensures that glass thickness stays within the 0.17 ±0.01 mm range.

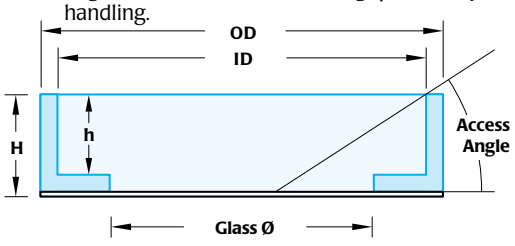
Conventional plastic dishes and chambers limit the utility of the inverted scope for many applications because the thick plastic bottom requires a long working distance objective available only in lower magnifications. Each WPI dish has a flat (0.17 mm thick) optical quality glass bottom, allowing the use of a much shorter objective working distance, larger numerical aperture (NA), and a higher magnification (up to 100x). The larger NA and higher magnification provide superior quality imaging for both classical and fluorescence microscopy. Higher effective NA yields brighter images for fluorescence and higher resolution in Image Analysis. The glass bottom permits the use of immersion objectives with medium such as water, glycerin or oil for the highest magnification possible. To optimize heat-exchange, WPI's glass-bottom dish is designed to be flush (flat) with the microscope stage or heating unit, therefore eliminating the air gap that exists with modified plastic dishes in which a glass cover slip has been inserted.

Three different sizes of FluoroDish are offered, one type of 50 mm diameter dish and two types of 35 mm diameter dishes. An inner well is created within the dish by the glass bottom and the tissue culture grade polystyrene which forms the sides of the dish. All WPI dishes have the advantages of low toxicity and good UV transmission bottom glass. They are individually packed and gamma sterilized.

The 35 mm dish has outside dimensions similar to that of a Corning 35 mm dish and has ø23.5 mm glass window (**FD35**) or ø10 mm glass window (**FD3510**). Most heaters and perfusion adapters designed for the Corning 35 mm dish will also fit this dish. The 23.5 mm glass window dish is available uncoated, poly-D-lysine-coated, or collagen-coated. Certain types of cell lines (*e.g.*, PC3 and HEK) adhere well to the uncoated glass bottom dish. The poly-D-lysine coating has been reported to improve the adhesion of neuron cells, and type I rat tail collagen has been reported to improve the adhesion of muscle cells. The users can also apply to the uncoated dish any special coating that is best for their cell line.

The 10 mm glass window dish (**FD3510**) has low sidewall for easy microelectrode access and low solution volume. The low microelectrode access angle is the lowest among all of 35 mm dishes on the market (very close that of a 50 mm dish). The dish needs only 100 ~ 200 mL to cover the bottom well, an important feature when using expensive drugs and chemicals.

The 50 mm dish (**FD50**) has a large growth area (35 mm well diameter), a low access angle for microelectrodes, and grips for easy handling.



Part Number	ID (mm	OD (mm)	Glass Ø (mm)	height (inside)	Height (outside)	Access Angle
FD35	33	35.5	23.5	7.8	9	29°
FD3510	10	35.5	10	1.5	4.65	17°
FD5040	47.5	49.82	35	7.25	7.4	17°

● *Choose from poly-D-lysine or collagen coated, or uncoated*

FD35-100	FluoroDish Sterile Culture Dish, clear wall, 35 mm, 23 mm well, box of 100
FD35COL-100	FluoroDish Sterile Culture Dish, Collagen Coated, clear wall, 35 mm, 23 mm well, box of 100
FD35PDL-100	FluoroDish Sterile Culture Dish, Poly-D-Lysine Coated, clear wall, 35 mm, 23 mm well, box of 100
FD3510-100	FluoroDish Sterile Culture Dish, clear wall, 35 mm, 10 mm well, low sidewall, box of 100
FD5040-100	FluoroDish Sterile Culture Dish, clear wall, 50 mm, 35 mm well, box of 100

Prices shown are in U.S. dollars. Actual charges will vary because of import duty, freight, and currency fluctuations. To obtain an exact quotation, contact your WPI office.

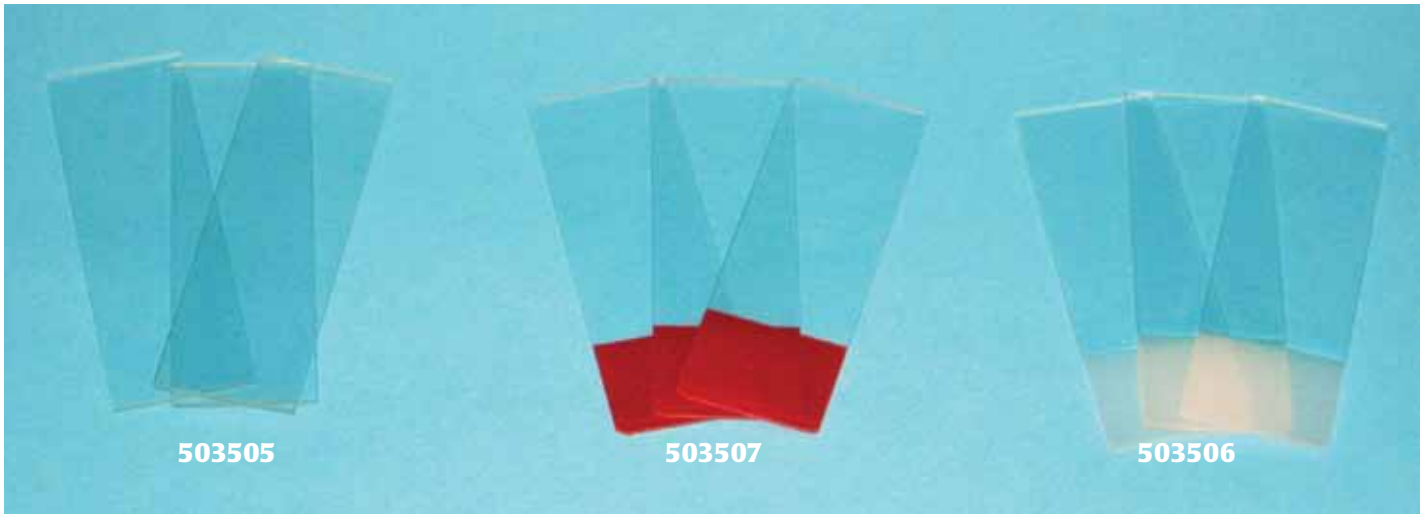
Cover Slips

These cover slips made of German glass can be used for growing and culturing cells that normally have poor adhesion to plastic surfaces. They are small enough to be placed in the micro plate or other cell culture devices. The 5 mm size will fit inside the 96-well culture plate and leave enough room to pick it up from the bottom of the well with forceps. The 8 mm size fits inside the 24-well plates.

Order Number	Diameter	Thickness	Quantity
502040	5 mm	#1.5 (0.16 - 0.19 mm)	100
502041	8 mm	#1.5 (0.16 - 0.19 mm)	100
503508	25 mm	#1.5 (0.16 - 0.19 mm)	100

Slides

These clean glass microscope slides are 25 x 75 mm, 1.0~1.2 mm thick with 90° grounded edges. and are available plain, frosted, and red ended. The frosted end slides feature a fine 20 mm frosted area on both sides of one end for easy marking. The red frosted slides feature a 20 mm colored end useful for identifying hazardous materials.



503505	Plain Glass Microscope Slides, Box of 144
503506	Frosted Glass Microscope Slides, Box of 144
503507	Red frosted Glass Microscope Slides, Box of 144